Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-15 (cancelled):

Claim 16 (previously presented): A process for production of an artificial tooth substitute to be fitted on a prepared dental stump comprising the steps of:

selecting a preprepared blank of porous ceramic material having a relative density ρ_R and an achievable relative density ρ_S after sintering;

scanning and digitizing a three-dimensional outer and inner surface of a positive model of a skeletal structure for the artificial tooth substitute to obtain data;

determining an enlargement factor (f) for the obtained data in accordance with the following

$$f = \sqrt[3]{\frac{\rho_S}{\rho_R}}$$

where ρ_R is the relative density of the preprepared blank and ρ_S is the achievable relative density after sintering;

enlarging the obtained data linearly in all directions by

the enlargement factor (f) thereby compensating precisely for sinter shrinkage to obtain modified data for an enlarged model;

transferring the modified data to a control unit of a processing machine;

processing the blank of the preprepared porous ceramic material in the processing machine and removing material therefrom to produce a design form of the enlarged model;

sintering the design form of porous ceramic material to obtain a skeletal structure having precise end dimensions; and

facing the skeletal structure as desired to form the artificial tooth substitute.

Claim 17 (previously presented): A process according to claim 16 or 33, wherein the artificial tooth substitute is formed with fine run-out margins.

Claim 18 (previously presented): A process according to claim 16 or 33, wherein the machined enlarged model is sintered to a density P_S of 90 to 100% of the theoretically possible density.

Claim 19 (previously presented): A process according to claim 16 or 33, wherein the machined enlarged model is sintered to a density P_S of 96 to 100% of the theoretically possible density.

Claim 20 (previously presented): A process according to claim 16 or 33, wherein the machined enlarged model is sintered to a density P_S of greater than 99% of the theoretically possible density.

Claim 21 (previously presented): A process according to claim 16 or 33, wherein the blank is a presintered blank of pressed fine ceramic powder.

Claim 22 (previously presented): A process according to claim 16 or 33, including processing the blank in a first rough machining and then a second final machining.

Claim 23 (previously presented): A process according to claim 16 or 33, wherein the blank is heat treated at temperatures in the range from 50 to 200°C for a duration of 2 to 20 hours.

Claim 24 (previously presented): A process according to claim 16 or 33, wherein the blank is heat treated at temperatures in the range from 90 to 150°C for a duration of 2 to 6 hours.

Claim 25 (previously presented): A process according to claim 23, wherein processing of the blank into the enlarged model

follows the heat treatment.

Claim 26 (previously presented): A process according to claim 24, wherein processing of the blank into the enlarged model follows the heat treatment.

Claim 27 (previously presented): A process according to claim 21, wherein the presintered blank undergoes presintering for 0.5 to 6 hours at a temperature of at least 450°C.

Claim 28 (previously presented): A process according to claim 16 or 33, wherein the blank is formed of a material selected from the group consisting of Al_2O_3, TiO_2, MgO, Y_2O_3, zircon oxide mixed crystal $Zr_{1-x}Me_xO_2-(4n\ _2)_x$, and mixture thereof, where Me is a metal which is present in the oxide form as a bi-, tri-, or tetravalant cation ($n = 2, 3, 4$ and $0 \leq x \leq 1$) and stabilises the tetragonal and/or cubic phase of the zircon oxide.

Claim 29 (currently amended): A process according to claim 28, wherein the material is mixed with an organic ~~bonding~~ binding agent selected from the group consisting of polyvinyl alcohols (PVA), polyacrylic acids (PAA), celluloses, polyethyleneglucols, ~~thermoplastics~~ and mixtures thereof.

Claim 30 (previously presented): A process according to claim 29, wherein the proportion of binding agent lies in the range from 0.1 to 45 vol%.

Claim 31 (previously presented): A process according to claim 29, wherein the proportion of binding agent lies in the range from 0.1 to 5 vol%.

Claim 32 (previously presented): A process for production of an artificial tooth substitute to be fitted on a prepared dental stump comprising the steps of:

scanning and digitizing a three-dimensional outer and inner surface of a positive model of a skeletal structure for the artificial tooth substitute to obtain data;

determining an enlargement factor (f) for the obtained data in accordance with the following

$$f = \sqrt[3]{\frac{\rho_S}{\rho_R}}$$

where ρ_R is the relative density of a preprepared blank and ρ_S is the achievable relative density after sintering;

enlarging the obtained data linearly in all directions by the enlargement factor (f) thereby compensating precisely for

sinter shrinkage to obtain modified data for an enlarged model;

transferring the modified data to a control unit of a processing machine for generating a desired path of a tool;

ceasing scanning and digitizing;

processing a blank of porous ceramic material in the processing machine wherein material is removed by the tool moving along the devised path to produce a design form of the enlarged model;

dense-sintering the design form of porous ceramic material to obtain a skeletal structure having precise end dimensions; and

facing the skeletal structure as desired to form the artificial tooth substitute.

Claim 33 (currently amended): A process for production of an artificial tooth substitute to be fitted on a prepared dental stump comprising the steps of:

(a) selecting a preprepared blank of porous ceramic material having a relative density ρ_R;

(b) sintering a further piece of the porous ceramic material under a set of sintering conditions to obtain an achievable relative density ρ_S of the ceramic material after sintering;

(c) determining an enlargement factor (f) for the obtained

data in accordance with the following

$$f = \sqrt[3]{\frac{\rho_S}{\rho_R}}$$

where ρ_R is the relative density of the preprepared blank and ρ_S is the achievable relative density of the porous ceramic material after sintering obtained in step (b);

(d) scanning and digitizing a three-dimensional outer and inner surface of a positive model of a skeletal structure for the artificial tooth substitute to obtain data;

(e) enlarging the obtained data linearly in all directions by the enlargement factor (f) thereby compensating precisely for sinter shrinkage to obtain modified data for an enlarged model;

(f) transferring the modified data to a control unit of a processing machine;

(g) processing the blank of the preprepared porous ceramic material in the processing machine and removing material therefrom to produce a design form of the enlarged model;

(h) sintering under the set of sintering conditions of step (b) the design form of porous ceramic material to obtain a skeletal structure having precise end dimensions; and

(i) facing the skeletal structure as desired to form the artificial ~~+~~ tooth substitute.

Claim 34 (new): A process according to claim 28, wherein the material is mixed with an organic binding agent comprising thermoplastics.

Claim 35 (new): A process for the production of a synthetic tooth substitute (28, 38) of pressed ceramic powder which fits on at least one preprepared dental stump (10) comprising calculating shrinkage of an inner surface (22) of a fully ceramic skeletal structure (14) of a biologically compatible material by scanning and digitizing geometric conditions of a positive model of a patient's mouth to obtain data, enlarging the data linearly in all directions by an enlargement factor (f) to compensate precisely for sinter shrinkage to obtain an enlarged design form of the skeletal structure (14), transferring to electronic control means of at least one processing machine the enlarged design form wherein the processing machine derives suitable tool drive paths to produce the enlarged designed form of the skeletal structure by removing material from inner and outer surfaces of a blank of the pressed ceramic powder, and temporally decoupled from digitization, removing the material from the inner and outer surfaces of the blank.

Claim 36 (new): Process according to claim 35, wherein the enlargement factor (f) of the positive model of a skeletal structure is established on the basis of material composition and powder properties, according to the formula

$$f = \sqrt[3]{\frac{\rho_S}{\rho_R}}$$

where ρ_R is the relative density of a preproduced blank and ρ_S the relative density achievable after sintering.

Claim 37 (new): Process according to claim 35, wherein the machined enlarged skeletal structure is sintered to a density ρ_S of 90-100% of the theoretical possible density.

Claim 38 (new): Process according to claim 35, wherein the machined enlarged skeletal structure is sintered to a density ρ_S of 96-100% of the theoretical possible density.

Claim 39 (new): Process according to claim 35, wherein the machined enlarged skeletal structure is sintered to a density ρ_S of over 99% of the theoretical possible density.

Claim 40 (new): Process according to claim 35, wherein the blank is subjected to a heat treatment at temperatures in the range from 50 to 200°C, for a duration of 2 to 20 hours.